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Appl. No. 10/823,465

Amdt. dated October 13, 2006

Reply to Office Action of June 14, 2006

Thomas M. Hardman

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Thomas M. Hardman/

Attorney for Applicants

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.

10/823,465

Confirmation No.: 4603

Applicant

Walter E. Red et al.

Title

SYSTEMS AND METHODS FOR CONTROLLING AND

MONITORING MULTIPLE ELECTRONIC DEVICES

Filed

April 13, 2004

TC/A.U.

2121

Examiner

Norton, Jennifer L.

Docket No.

1737.2.15

Customer No.

21552

Mail Stop RCE Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

Dear Sir:

In response to the Office Action mailed June 14, 2006, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (Currently Amended) A method for controlling electronic devices through a host device, the method comprising:
 - establishing <u>frequency-based</u>, <u>real-time</u> electronic communications <u>over a network</u> between the host device and a controlled device, <u>wherein electronic communication between</u> the host device and the controlled device always occurs at an assigned control frequency;
 - assigning [[a]] the control frequency for the controlled device using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each control frequency that is assigned has a value of 2^N;
 - generating, at the host device, control input for the controlled device; and sending the control input to the controlled device at the assigned control frequency.
- 2. (Original) The method of claim 1, further comprising receiving, at the host device, output from the controlled device in response to the control input.
- (Cancelled)
- 4. (Original) The method of claim 1, further comprising establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer.
- 5. (Original) The method of claim 4, wherein N is independently determined for each controlled device of the plurality of the controlled devices.

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- 6. (Original) The method of claim 1, wherein the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of the controlled device.
- 7. (Original) The method of claim 1, further comprising initiating a control loop process on the host device when electronic communication is established with a controlled device.
- 8. (Original) The method of claim 1, further comprising accessing the host device from a remote computing device via the Internet.
- 9. (Original) The method of claim 8, further comprising providing information relating to the controlled device to a user at the remote computing device.
- 10. (Original) The method of claim 9, further comprising receiving user input at the host device from the user at the remote computing device, wherein the input relates to the controlled device.
- 11. (Currently Amended) A computing device configured for controlling electronic devices, the computing device comprising:

a processor;

memory in electronic communication with the processor; and executable instructions executable by the processor, wherein the executable instructions are configured to implement a method comprising:

between the computing device and a controlled device, wherein electronic communication between the computing device and the controlled device always occurs at an assigned control frequency;

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assigning [[a]] the control frequency for the controlled device using a 2^N time slicing algorithm, wherein N is a non-negative integer, wherein each control frequency that is assigned has a value of 2^N; generating, at the computing device, control input for the controlled device; and sending the control input to the controlled device at the assigned control frequency.

- 12. (Original) The computing device of claim 11, wherein the method further comprises receiving, at the computing device, output from the controlled device in response to the control input.
- 13. (Cancelled)
- 14. (Original) The computing device of claim 11, wherein the method further comprises establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer.
- 15. (Original) The computing device of claim 14, wherein N is independently determined for each controlled device of the plurality of controlled devices.
- 16. (Original) The computing device of claim 11, wherein the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of the controlled device.

- 17. (Original) The computing device of claim 11, wherein the method further comprises initiating a control loop process on the computing device when electronic communication is established with a controlled device.
- 18. (Original) The computing device of claim 17, wherein the method further comprises initiating a torque/current control loop process at a microcontroller on the controlled device when the controlled device comprises a motor.
- 19. (Original) The computing device of claim 11, wherein the method further comprises accessing the computing device from a remote computing device via the Internet.
- 20. (Original) The computing device of claim 19, wherein the method further comprises providing information relating to the controlled device to a user at the remote computing device.
- 21. (Original) The computing device of claim 20, wherein the method further comprises receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled device.
- 22. (Currently Amended) A computer-readable medium for storing program data, wherein the program data comprises executable instructions for implementing a method in a computing device for controlling electronic devices, the method comprising:
 - between the computing device and a controlled device, wherein electronic communication between the computing device and the controlled device always occurs at an assigned control frequency;
 - assigning [[a]] the control frequency for the controlled device using a 2^N time slicing algorithm, where N is a non-negative integer, wherein each control frequency that is assigned has a value of 2^N;

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generating, at the computing device, control input for the controlled device; and sending the control input to the controlled device at the assigned control frequency.

- 23. (Original) The computer-readable medium of claim 22, wherein the method further comprises receiving, at the computing device, output from the controlled device in response to the control input.
- 24. (Cancelled)
- 25. (Original) The computer-readable medium of claim 22, wherein the method further comprises establishing real-time electronic communications with a plurality of controlled devices and assigning a discrete control frequency for each controlled device using the 2^N time slicing algorithm, where N is a non-negative integer.
- 26. (Original) The computer-readable medium of claim 25, wherein N is independently determined for each controlled device of the plurality of controlled devices.
- 27. (Original) The computer-readable medium of claim 22, wherein the 2^N time slicing algorithm comprises assigning the control frequency at 2^N hertz, where N is a non-negative integer that will yield a discrete control frequency in proximity to a preferred control frequency of the controlled device.
- 28. (Original) The computer-readable medium of claim 22, wherein the method further comprises initiating a control loop process on the computing device when electronic communication is established with a controlled device.
- 29. (Original) The computer-readable medium of claim 22, wherein the method further comprises accessing the computing device from a remote computing device via the Internet.

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- 30. (Original) The computer-readable medium of claim 29, wherein the method further comprises providing information relating to the controlled device to a user at the remote computing device.
- 31. (Original) The computer-readable medium of claim 30, wherein the method further comprises receiving user input at the computing device from the user at the remote computing device, wherein the input relates to the controlled device.

REMARKS/ARGUMENTS

Claims 1-31 are pending in the present application. The Office Action mailed June 14, 2006 rejected claims 1-31 under 35 U.S.C. § 103(a). Reconsideration is respectfully requested in view of the above amendments to the claims and the following remarks.

Support for the above amendments may be found throughout Applicants' specification and drawings. For purposes of example, Applicants respectfully refer the Examiner to paragraphs [47]-[48], [52] and [79] of Applicants' specification, and to Figures 1-2.

Rejection of Claims 1-31 Under 35 U.S.C. § 103(a)

The Office Action rejected claims 1-31 under 35 U.S.C. § 103(a) based on U.S. Patent No. 6,499,054 (hereinafter, "Hesselink") in view of U.S. Patent No. 6,028,412 (hereinafter, "Shine"). This rejection is respectfully traversed.

The M.P.E.P. states that

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

M.P.E.P. § 2142.

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not disclose, teach or suggest all of the limitations in these claims.

There are three independent claims at issue: claims 1, 11 and 22. Claims 1, 11 and 22 will be referred to collectively herein as the "independent claims."

Hesselink does not teach or suggest "establishing frequency-based, real-time electronic communications over a network between the host device and a controlled device," as recited in the independent claims. Hesselink relates generally to "remote control of physical processes in a laboratory." Hesselink, col. 1, lines 9-10. However, the control network in Hesselink is not configured for "frequency-based, real-time electronic communications," as recited in claim 1. Hesselink indicates that the control network operates in accordance with the TCP/IP protocol. See id., col. 4, lines 56-63. The TCP/IP protocol is a collision-based packet sending protocol. In other words, messages are broadcast to recipients, but if packet collisions occur (i.e., the messages are not received by the recipient device), they are re-broadcast by the broadcasting device. Accordingly, the control network in Hesselink is not designed for "frequency-based, real-time electronic communications" as required by the independent claims.

Applicants acknowledge that Hesselink refers to "[o]bserving physical processes in real-time via the Internet." Hesselink, col. 10, lines 2-3. However, even though Hesselink uses the term "real-time," Hesselink is not referring to the "frequency-based, real-time electronic communications over a network" recited in claim 1. One of ordinary skill in the art would interpret the term "real-time" in Hesselink to mean "current time" or "near time," with minor delay(s) in observing or interacting with the controlled devices. In contrast, the independent claims recite that "electronic communication between the host device and the controlled device always occurs at an assigned control frequency." The "frequency-based, real-time electronic communications" recited in claim 1 are not possible if the standard TCP/IP protocol is used.

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¹ Claims 11 and 22 recite "computing device" instead of "host device."

Shine also does not teach or suggest "establishing frequency-based, real-time electronic communications over a network between the host device and a controlled device," as recited in the independent claims. In fact, Applicants cannot find any teaching in Shine related to electronic communication between a host device and a controlled device over a network.

Conclusion

Applicants respectfully assert that all pending claims are patentably distinct from the cited references, and request that a timely Notice of Allowance be issued in this case. If there are any remaining issues preventing allowance of the pending claims that may be clarified by telephone, the Examiner is requested to call the undersigned.

Respectfully submitted,

Thomas M. Hardman

/Thomas M. Hardman/

Thomas M. Hardman Reg. No. 51,777

Attorney for Applicant

Date: October 13, 2006

MADSON & AUSTIN
Gateway Tower West
15 West South Temple, Suite 900
Salt Lake City, Utah 84101
Telephone: 801/537-1700

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PTO/SB/30 (09-04)

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Request 10/823,465 Application Number For April 13, 2004 Filing Date Continued Examination (RCE) Walter E. Red Transmittal First Named Inventor Jennifer L. Norton Address to: **Examiner Name** Mail Stop RCE 2121 **Commissioner for Patents** Group Art Unit P.O. Box 1450 Alexandria, VA 22313-1450 1737.2.15 Attorney Docket Number

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

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1.	Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If										ments and invise. If	
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	a.	Previously submitted. If a final Office Action is outstanding, any amendments filed after the final Office Action may be considered as a submission even if this box is not checked.										
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2.	Miscellaneous										: : :	
	a. Suspension of action on the above-identified application is requested under 37 C.F.R. § 1.103(c) for a period of months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)											<u>!</u>
b. Other									: : !			
3.	Fe	Fees The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.										<u>:</u> :
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	i	i. RCE fee required under 37 C.F.R. § 1.17(e)										
	ii. Extension of time fee (37 C.F.R. §§ 1.136 and 1.17)											
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This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you are required to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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PETITION FO	R EXTENSION OF TIME UNDER 37 CFR FY 2005 (fees effective on or after October 1, 2004)	Docket Number (Optional) 1737.2.15							
Application Nun	nber 10/823,465	Filed April 13, 2004							
For SYSTEMS AND METHODS FOR CONTROLLING AND MONITORING MULTIPLE ELECTRONIC DEVICE									
Group Art Unit 2121 Examiner Jennifer L. Norton									
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a response in the above identified application.									
The requested extension and appropriate small-entity fee are as follows (check time period desired):									
		<u>Fee</u>	Small Entity Fee						
×	One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ <u>60</u>					
	Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$					
	Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$					
	Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$					
	Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$					
⊠ АррІ	Applicant claims small entity status. See 37 CFR 1.27.								
☐ Act	A check in the amount of the fee is enclosed.								
⊠ Payr	Payment by credit card.								
☐ The	The Commissioner has already been authorized to charge fees in this application to a Deposit Account								
	The Commissioner is hereby authorized to charge any underpayment of the above fees, or credit any overpayment, to Deposit Account Number 13-0763.								
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l am the ☐ applicant/inventor.									
assignee of record of the entire interest. See 37 CFR 3.71 Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).									
⊠ a	☑ attorney or agent of record. Registration Number: 51,777								
	attorney or agent under 37 CFR 1.34(a).			i.					
Registration number if acting under 37 CFR 1.34(a)									
	/Thomas M. Hardman/ October 13, 2006								
	/Thomas M. Hardman/ October 13, 20 Signature Date								
Thomas M. Hardman (801) 537-1700									
Name Telephone Number									
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.									

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you are required to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 223 3-1450.

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			Application Number		10/823,465					
TRA	NSI	MITTAL	Filing Date	April 13, 20	April 13, 2004					
	FO	RM	First Named Inventor	Walter E. F	Walter E. Red					
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Typed or printed na	ame	Thomas M. Hardman					Date	January 9, 2007		

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